UNDERWATER BRIDGE INSPECTION REPORT

STRUCTURE NO. 55520

CSAH NO. 12

OVER THE

ZUMBRO RIVER

DISTRICT 6 - OLMSTEAD COUNTY

PREPARED FOR THE

MINNESOTA DEPARTMENT OF TRANSPORTATION

BY

COLLINS ENGINEERS, INC.

JOB NO. 3512 (CEI 151)

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

REPORT SUMMARY:

The substructure units inspected at Bridge No. 55520, Piers 1, 2, and 3, were found to be in good to very good condition with no defects of structural significance observed. The channel bottom, consisting of very firm material around Pier 1 and fine silty organic material around Piers 2 and 3, appeared stable with no significant changes since the previous inspection.

INSPECTION FINDINGS:

(A) A light accumulation of 1-foot-diameter-and-smaller timber debris was observed at both ends of Pier 1.

(B) A 1-foot-diameter, 15-foot-long log was observed on the channel bottom along the west face of Pier 2.

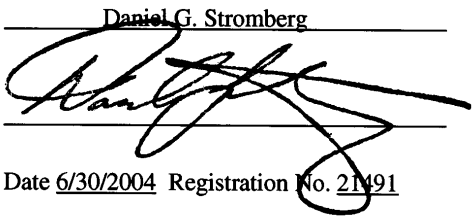
(C) Minor areas of poor consolidation were observed at various locations along the piers with a typical diameter of 1 inch and a typical penetration of 1/2 inch.

RECOMMENDATIONS:

(A) Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of five (5) years.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

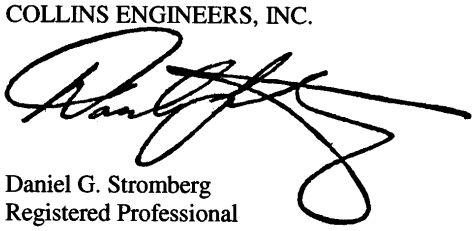
Daniel G. Stromberg



Date 6/30/2004 Registration No. 21491

Respectfully submitted,

COLLINS ENGINEERS, INC.



Daniel G. Stromberg
Registered Professional
Engineer, State of Minnesota

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

1. BRIDGE DATA

Bridge Number: 55520

Feature Crossed: The Zumbro River

Feature Carried: CSAH No. 12

Location: District 6 - Olmstead County

Bridge Description: The superstructure consists of a four span, multiple steel girder bridge. The superstructure is supported by two reinforced concrete abutments and three reinforced concrete piers. The pier footings are supported on steel piles. The piers are numbered 1 through 3 starting at the west end.

2. INSPECTION DATA

Professional Engineer/Team Leader: Shirley M. Walker, P.E.

Dive Team: Michelle D. Koerbel, Clayton G. Brookins

Date: October 2, 2002

Weather Conditions: Cloudy, "45EF

Underwater Visibility: "1 foot

Waterway Velocity: Negligible/None

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: Piers 1, 2, and 3

General Shape: The piers consist of a rectangular concrete shaft with rounded ends, supported by a rectangular footing founded on steel piles.

Maximum Water Depth at Substructure Inspected: Approximately 13.5 feet.

4. WATERLINE DATUM

Water Level Reference: The top of the webwall at Pier 2.

Water Surface: The waterline was approximately 14.7 feet below reference.
Waterline Elevation = 915.3.

5. NBIS CODING INFORMATION (Minnesota specific codes are used for 92B and 113)

Item 60: Substructure: Code 8

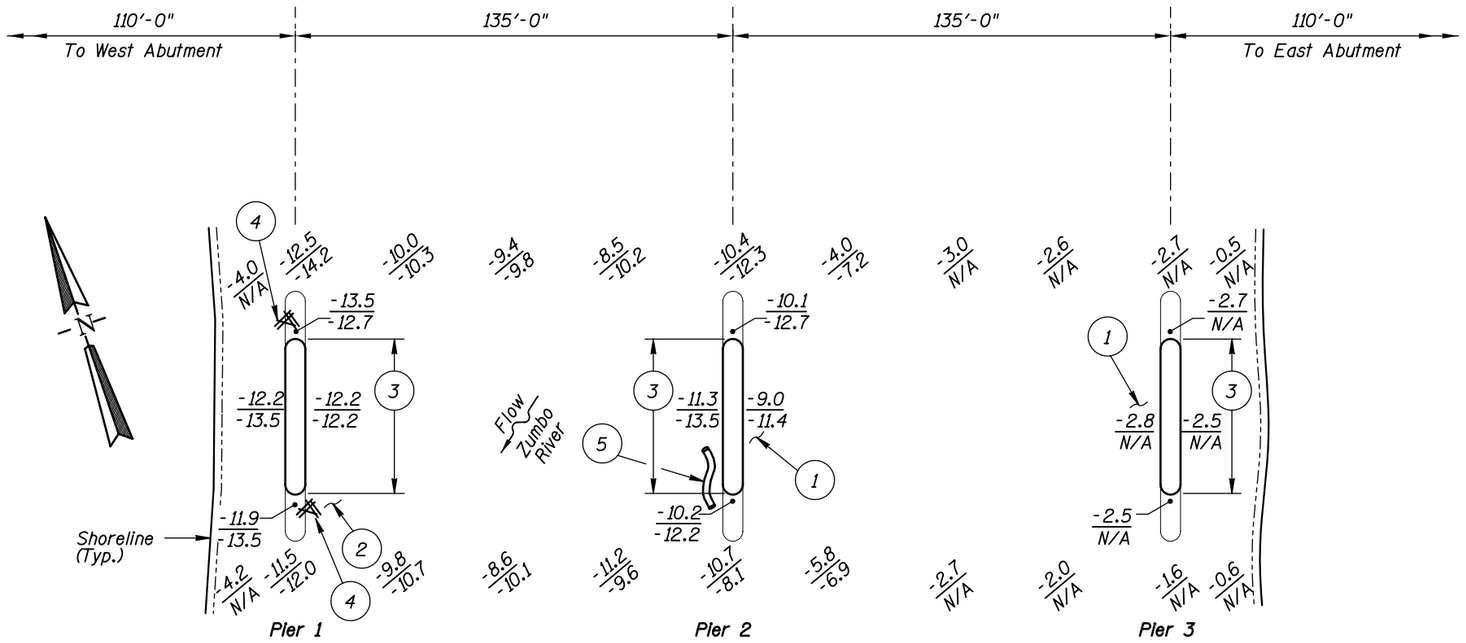
Item 61: Channel and Channel Protection: Code 7

Item 92B: Underwater Inspection: Code B/10/02

Item 113: Scour Critical Bridges: Code I/91

Bridge is scour critical because abutment or pier foundation is rated as unstable due to observed scour at bridge site.

_____Yes ___X__ No



SOUNDING PLAN

GENERAL NOTES:

1. Piers 1, 2, and 3 were inspected underwater.
2. At the time of inspection on October 2, 2002, the waterline was located approximately 14.7 feet below the top of the webwall of Pier 2. This corresponds with a waterline elevation of 915.3 based on the previous report dated September 30, 1997.
3. Soundings indicate the water depth at the time of inspection and are measured in feet.
4. Soundings were taken parallel to the bridge at 1/4 point intervals between the substructure units.

INSPECTION NOTES:

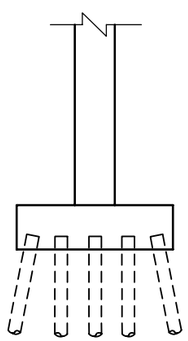
(1) The channel bottom consisted of fine silty organics with greater than 2 feet of probe rod penetration.

(2) The channel bottom consisted of firm material with no probe rod penetration around Pier 1.

(3) Minor voids due to poor consolidation of the concrete were observed at various locations along piers, typically 1 inch in diameter with 1/2 inch of penetration.

(4) A light accumulation of 1-foot-diameter and smaller timber debris was observed at both ends of Pier 1.

(5) A 1-foot-diameter, 15-foot-long log was observed on the channel bottom along the west face of Pier 2.



TYPICAL END VIEW OF PIERS

Legend

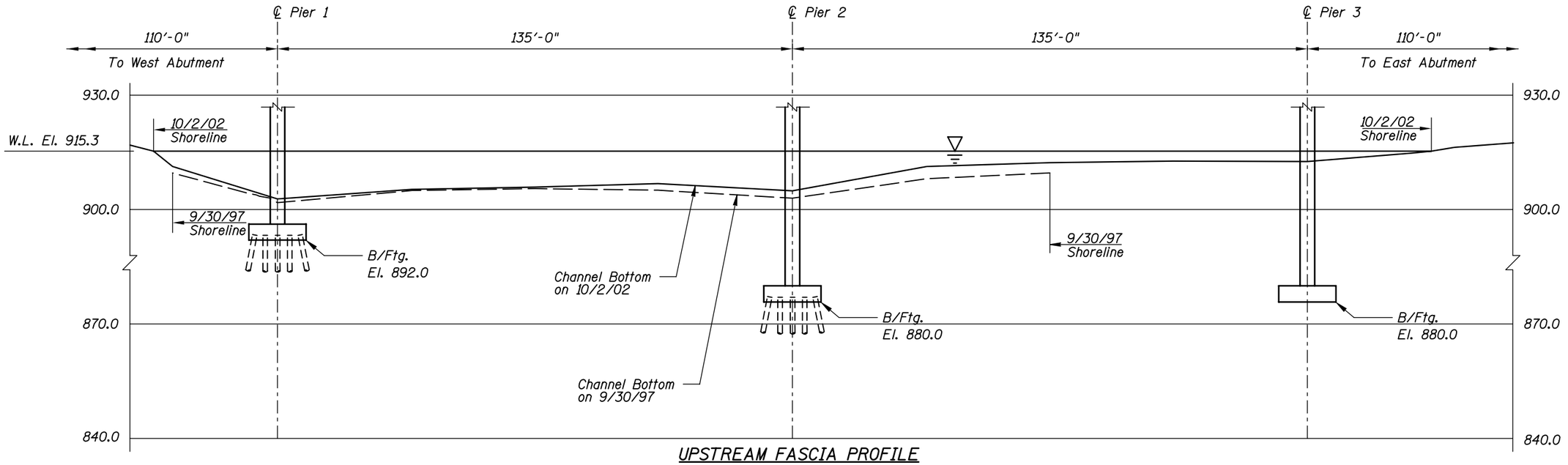
-2.0	Sounding Depth from Waterline (10/2/02)
-5.2	Sounding Depth from Waterline (9/30/97)
	Timber Debris

MINNESOTA
DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

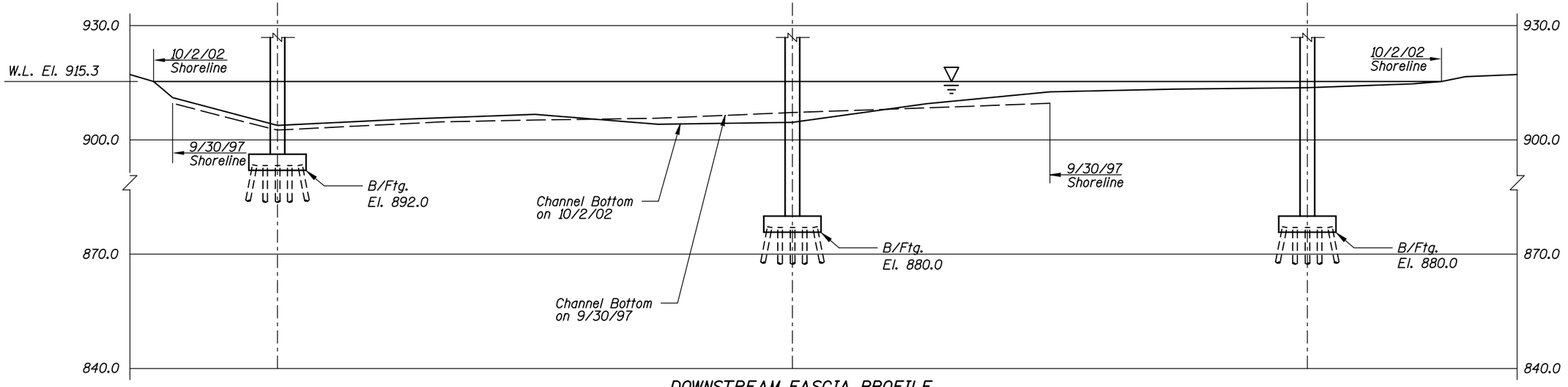
STRUCTURE NO. 55520
OVER THE ZUMBRO RIVER
DISTRICT 6, OLMSTED COUNTY

INSPECTION AND SOUNDING PLAN

Drawn By: PRH	COLLINS ENGINEERS, INC.	Date: OCT. 2002
Checked By: MDK	300 W. WASHINGTON, STE. 600 CHICAGO, ILLINOIS 60606 (312) 704-9300	Scale: NTS
Code: 35120151		Figure No.: 1



UPSTREAM FASCIA PROFILE



DOWNSTREAM FASCIA PROFILE

Note:

Refer to Figure 1 for General Notes.

MINNESOTA
DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

STRUCTURE NO. 55520
OVER THE ZUMBRO RIVER
DISTRICT 6, OLMSTED COUNTY

UPSTREAM AND DOWNSTREAM FASCIA PROFILES

Drawn By: PRH	COLLINS ENGINEERS, INC.	Date: OCT. 2002
Checked By: MDK	300 W. WASHINGTON, STE. 600 CHICAGO, ILLINOIS 60606 (312) 704-9300	Scale: 1"=30'
Code: 35120151		Figure No.: 2

Photograph 1. Overall View of the Structure, Looking West.

Photograph 2. View of Pier 1, Looking Northwest.

Photograph 3. View of Pier 2, Looking Southeast.

Photograph 4. View of Pier 3, Looking Southeast.

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES
DAILY DIVING REPORT

INSPECTORS: Collins Engineers, Inc. DATE: October 2, 2002
ON-SITE TEAM LEADER: Shirley M. Walker, P.E.
BRIDGE NO: 55520 WEATHER: Cloudy, "45EF
WATERWAY CROSSED: The Zumbro River
DIVING OPERATION: X SCUBA SURFACE SUPPLIED AIR
OTHER
PERSONNEL: Michelle D. Koerbel, Clayton G. Brookins
EQUIPMENT: Scuba, U/W light, Scraper, Sounding Pole, Probe Rod, Camera
TIME IN WATER: 12:15 p.m.
TIME OUT OF WATER: 1:15 p.m.
WATERWAY DATA: VELOCITY Negligible/None
VISIBILITY "1 Foot
DEPTH 13.5 Feet maximum at Pier 1
ELEMENTS INSPECTED: Piers 1, 2, and 3
REMARKS: Overall, the concrete of the piers was in good to very good condition with no defects of structural significance observed, although minor areas of poor consolidation were observed at various locations along all of the piers with a typical diameter of 1 inch and a typical penetration of 1/2 inch. A light accumulation of timber debris was observed at both ends of Pier 1, and a 15-foot long log was observed on the channel bottom along the west face of Pier 2.

FURTHER ACTION NEEDED: _____ YES ____X___ NO

Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of five (5) years.

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES

UNDERWATER INSPECTION CONDITION RATING FORM

BRIDGE NO. 55520
INSPECTORS Collins Engineers, Inc.
ON-SITE TEAM LEADER Shirley M. Walker, P.E.
WATERWAY CROSSED The Zumbro River

INSPECTION DATE October 2, 2002

NOTE: USE ALL APPLICABLE CONDITION DEFINITIONS AS DEFINED IN THE MINNESOTA RECORDING AND CODING GUIDE INCLUDING GENERAL, SUBSTRUCTURE, CHANNEL AND PROTECTION, AND CULVERTS AND WALL DEFINITIONS TO COMPLETE THIS FORM.

CONDITION RATING

			SUBSTRUCTURE						CHANNEL					GENERAL					
UNIT REFERENCE NO.		MAXIMUM DEPTH OF WATER	PILING	COLUMNS, SHAFTS, OR FACES*	FOOTINGS	DISPLACEMENT	OTHER	OVERALL SUBSTRUCTURE CONDITION CODE*	SCOUR	EMBANKMENT EROSION	EMBANKMENT PROTECTION	OTHER (DRIFT/DEBRIS)	OVERALL CHANNEL & PROTECTION CONDITION	CONCRETE	STEEL	TIMBER	LOSS OF SECTION	PREVIOUS REPAIR OR MAINTENANCE	OTHER
	UNIT DESCRIPTION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	Pier 1	13.5’	N	8	N	9	N	8	8	N	N	7	7	8	N	N	N	N	N
	Pier 2	11.3’	N	8	N	9	N	8	8	N	N	7	7	8	N	N	N	N	N
	Pier 3	2.8’	N	8	N	9	N	8	8	N	N	N	8	8	N	N	N	N	N

*UNDERWATER PORTION ONLY

REMARKS: Overall, the concrete of the piers was in good to very good condition with no defects of structural significance observed, although minor areas of poor consolidation were observed at various locations along all of the piers with a typical diameter of 1 inch and a typical penetration of 1/2 inch. A light accumulation of timber debris was observed at both ends of Pier 1, and a 15-foot long log was observed on the channel bottom along the west face of Pier 2.

NOTES: ATTACH SKETCHES AS NEEDED, IDENTIFY REMARK BY REFERRING TO UNIT REFERENCE NO. AND REMARK NO.
USE GENERAL SECTION TO IDENTIFY OVERALL PRESENCE OF SPALLS, CRACKS, CORROSION, ETC.